

ABSTRACT OF THE DISCLOSURE

A pixel for detecting red and green light is a single pixel is described. The pixel comprises a deep N well formed in a P type epitaxial substrate. The pixel

5 comprises a deep N well formed in a P type epitaxial substrate. A number of P wells, which are used as the sensor nodes, are formed in the deep N well. The use of these P wells as the sensor nodes improves the modulation transfer function. The depth of the deep N well is about equal to the depth of hole electron pairs generated by red light in silicon. The depth of the P wells is about equal to the depth of hole electron pairs

10 generated by green light in silicon. A red/green signal is determined at each P well by determining the potentials between each of the P wells and the deep N well after a charge integration cycle with the P wells and the deep N well isolated. A green signal is determined at each P well by determining the potentials between each of the P wells and the deep N well after a charge integration cycle with the P wells isolated and the deep N

15 well held at a fixed positive voltage. A red signal at each P well is determined by subtracting the green signal at that P well from the red/green signal at that P well. The invention can take advantage of the fact that the human perception of a green signal is green, the human perception of a red signal is red, and the human perception of a red/green signal is red. The invention also works if P regions are substituted for N

20 regions and N regions substituted for P regions.